# NEWS RELEASE

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## NASA-FAA SUPERSONIC TRANSPORT STUDY

Engineers and pilots of the National Aeronautics and Space Administration working in cooperation with the Federal Aviation Agency, have completed a series of studies simulating flight profiles of a supersonic transport (SST). The studies were made at NASA's Flight Research Center, Edwards, Calif.

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Engineers used a two-place Navy A5A jet bomber to study possible air traffic control problems and to obtain operational data for planning future supersonic transport flights. The A5A was used in the simulation tests because it has almost the same thrust-to-weight ratio as an SST at altitudes up to 50,000 feet.

Twenty-one simulated flights were programmed along busy federal airways converging on Los Angeles. The airplane was put in several phases of flight -- takeoff, climb, level cruising, descent. In the climb up to 30,000 feet, subsonic speed was maintained. Then the airplane was flown in level flight at 50,000 feet at supersonic speed of Mach 1.7 (about 1,120 mph). Simulated descents to lower altitude began with deceleration to Mach 1.4. The airplane was slowed to subsonic speed before getting down to 30,000 feet. At 20,000 feet, the engineers simulated the speed at 340 mph -- about the speed of current jet transports on letdown operations.

FAA controllers, monitoring the simulated flights, said they had no difficulties during the descent and landing phases; however, they had control problems during the take-offs and climb-out phases because of greater speeds and faster climb.

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The tests show that -- as expected -- because of the greater speeds pilots must be given more advance notice of changes in flight procedures, such as holding instructions and changes in altitude.

In-flight weather information was found to be an important factor because changes in outside air temperature and pressure conditions greatly influenced the times and distances required to accelerate from subsonic to Mach 2.0 flight.

The study was made for NASA's Office of Advanced Research and Technology. It was under the direction of Donald L. Hughes, A5A program manager, and William H. Dana, project pilot, both from NASA's Flight Research Center. Heading the project for FAA's Office of Supersonic Development and the FAA Western Region was Joseph J. Tymczyszyn.

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